

# SMITHSONIAN ZOOGOER

For members of **FRIENDS OF THE NATIONAL ZOO**

MARCH | APRIL | 2012

## CHEETAH Champions

Zoo scientists are helping these  
spotted cats reproduce.

- » **Enriching  
Our Exhibits**
- » **Giant Panda  
Portfolio**
- » **Owls: Hunters  
With Wings**



Good day.

Great day.

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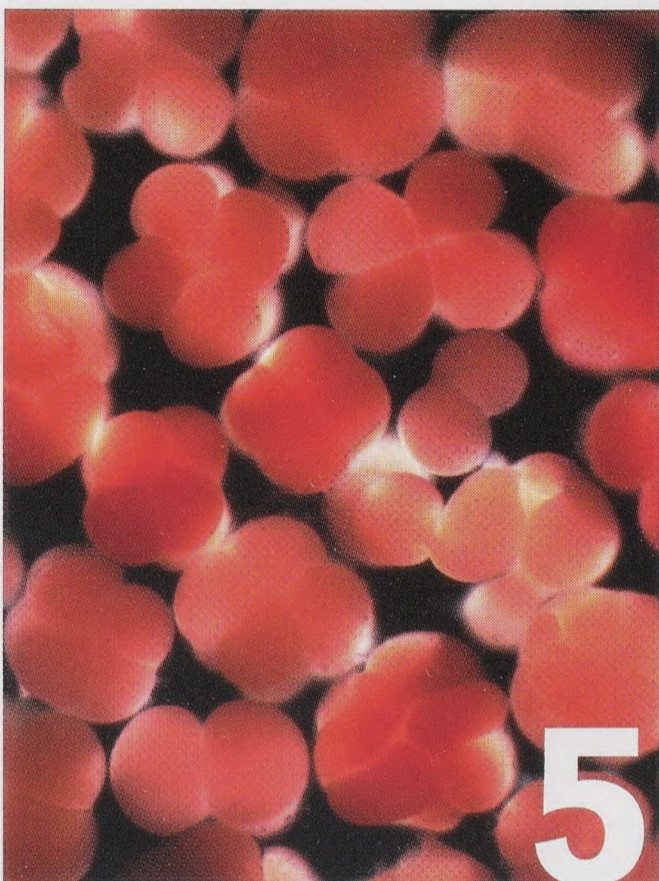


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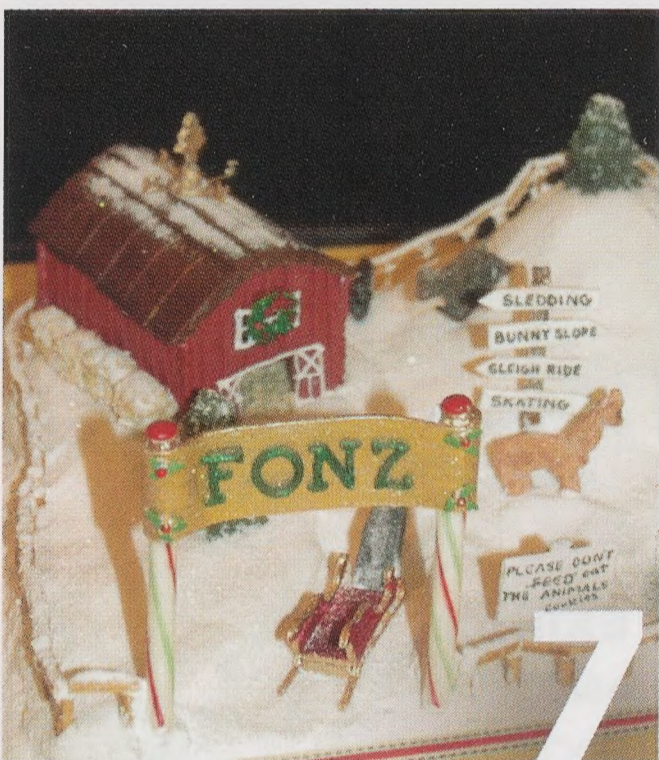
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# SMITHSONIAN Zoogoer



is the dedicated partner of the Smithsonian's National Zoological Park. FONZ provides exciting and enriching experiences to connect people with wildlife. Together with the Zoo, FONZ is building a society committed to restoring an endangered natural world. Formed in 1958, FONZ was one of the first conservation organizations in the nation's capital.

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**On the cover:** Cheetahs at the Zoo have produced five litters of cubs. PHOTO BY JESSIE COHEN/NZP

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## THOUGHT FOR FOOD

**“FOOD IS AN IMPORTANT PART OF A BALANCED DIET,”** wrote humorist Fran Lebowitz. I agree. My FONZ colleagues and I know that food is an important part not only of your diet but also of your visit to the Zoo. FONZ began operating food service at the Zoo in 1975.

We have been listening to your comments and suggestions for improving your Zoo visits and looking for ways to address them. An improved food experience has been high on your list and on mine.

In response to your suggestions, we improved our menu offerings, added new vendors, and upgraded service and signage. We learned that long-formed visitor attitudes change slowly. A year and a half ago, we commissioned a study that concluded that the best option for making dramatic improvements would be to move from a self-operated approach to a contractor food service operation.

Five food service providers competed for the opportunity to come to a Zoo that is so highly regarded and situated in a community that is so conscious of the importance of quality food in their cultural or recreational choices.

Our goal was to select a firm that could deliver restaurant-quality food, expand our access to fresh and local food products, speed service to our visitors, secure reinvestment and improvement in our facilities, and deliver products that are consistent with our contemporary food service choices. To meet these goals, we have selected Sodexo to be our food service provider.

The transition will begin in April and take place over a few years, as new menus and choices are put in place, new and expanded points of sale come into operation, and facilities are remodeled and refurbished. I believe you will notice the positive changes almost immediately, though the full impact of Sodexo's changes will take place over time as millions of dollars are invested in our food operations and facilities. We will be able to offer new catering options for picnics, parties, and receptions. We are looking forward to these changes and know they will enrich your Zoo experience.

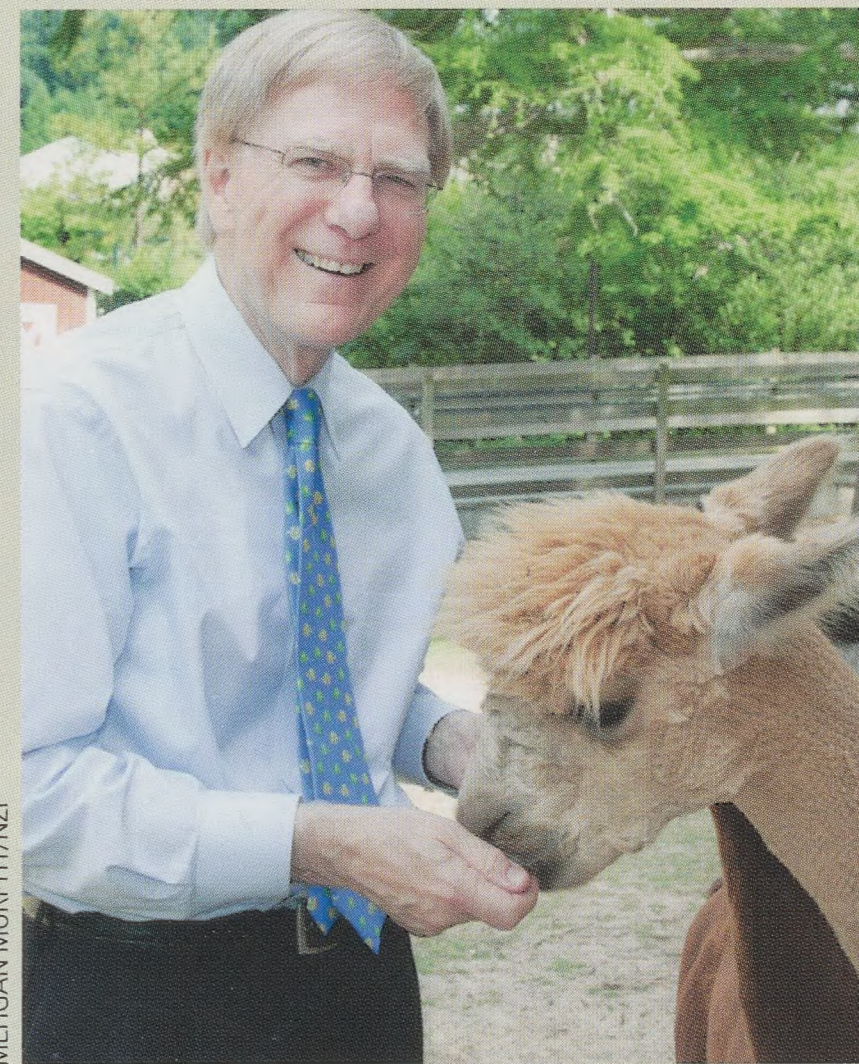
Speaking of food, I urge you to attend what local restaurateurs tell us is the best “foodie” event in the Washington area. For those who have attended before, you know I am describing ZooFari, the Zoo's annual food-and-wine-tasting event. It features leading chefs of D.C., from more than 100 restaurants, as well as more than a dozen vintners. Washington's own “Dean of Cuisine,” chef Michel Richard, has been attending every ZooFari for more than 20 years, and other leading chefs in the area wouldn't miss the best food event of its kind in the area.

If you have never attended ZooFari, I strongly suggest that you do. If you have, I look forward to seeing you and your guests again on May 17th. Of course, all proceeds advance the mission of your Smithsonian National Zoo. Please consult the ZooFari ad on the inside back cover for details.

Sincerely,

Bob Lamb

Executive Director, Friends of the National Zoo



MEGHAN MURPHY/NZP

## SCIENTISTS ON THE ARK



MEGHAN MURPHY/NZP

### CONSERVATION IS IN OUR GENES AT THE SMITHSONIAN'S NATIONAL ZOO.

One of the driving forces for creating the Zoo, back in 1889, was a growing awareness of the threats to North American wildlife. The iconic American bison, for instance, was almost extinct. The new zoological park was envisioned as a refuge for the continent's natural treasures.

It still is. The Zoo is home to beavers, river otters, bald eagles, and much more North American fauna. Some of these animals—along with new acquisitions, such as gray wolves and ravens—will grace the American Trail, slated to open this summer. This newest exhibit reinvigorates the Zoo's historic focus with state-of-the-art habitat designs. Future issues of *Smithsonian Zoogoer* will tell you more about this exciting new chapter in the Zoo's history.

American Trail is only one facet of the Zoo's efforts to conserve North American wildlife. Scientists from our Smithsonian Conservation Biology Institute (SCBI) are engaged in a variety of projects aimed at deepening our understanding of the creatures with whom we share the continent. That growing knowledge is essential for effective conservation efforts.

One of the clearest examples of the link between scientific inquiry and practical conservation comes from the work of SCBI's Katherine Ralls. Working with collaborators from the University of Minnesota, she pioneered the use of radio telemetry to study sea otters in California. The animals' body shape precluded the use of collars or harnesses, so veterinarians surgically implanted the transmitters.

The results were astounding. The team learned that sea otters venture much farther offshore than anyone had realized. In the depths, many of the animals became entangled in fishing nets. The discovery spurred the marine mammals' advocates to action. Armed with scientific evidence, they were able to persuade California to enlarge the protected area set aside for the otters.

SCBI researchers also explore the interaction between animals and their environments. Scott Sillett collaborates with the Nature Conservancy and National Park Service to study and protect island scrub-jays, which are the key dispersers of acorns in the oak forests of the Channel Islands off the West Coast. Closer to home, William McShea probes how the overabundance of white-tailed deer in eastern forests affects wildflowers, birds, and other inhabitants of the ecosystem.

Here at the Rock Creek campus, Robert Fleischer and his colleagues in the genetics lab shed light on big issues by examining the tiny building blocks of life. They're unlocking the mysteries of invasive avian malaria in Hawaii, hoping to identify the specific genes that allow some introduced mosquitoes to transmit the disease. And they're embarking on a new study of white-nosed syndrome, which is wiping out bat populations in the East. They'll be examining specimens with collaborators from the National Museum of Natural History to determine whether the disease predates its appearance in the wild six years ago.

These, of course, are just a few of countless examples. They're all that space will permit—but enough, I hope, to inspire awe at the breadth of the Zoo's conservation work on our home continent and pride in your vital role in supporting that work.

Sincerely,

Dennis Kelly  
Director, Smithsonian's National Zoological Park



LISA WARE/NZP

## Maned Wolf Pups

**F**our maned wolf pups were born on January 5 at the Smithsonian Conservation Biology Institute (SCBI) headquarters in Front Royal. It is the first litter born at the Zoo in two years and will play an important role in helping researchers maintain a viable, self-sustaining population under human care.

That's important because the North American population of maned wolves has decreased by 20 percent over the past five years. Researchers believe that the reproductive challenges are caused, in part, by gastrointestinal disorders that are common in the species and may be linked to diet.

As a result, SCBI is one of 19 institutions participating in a study to determine whether a plant-based diet that more closely simulates the diet of maned wolves in the wild can boost reproductive rates. The parents of the new pups are both on the trial diet.

"Every pup born here helps us understand more about the biology of this incredible species," says Nucharin Songsasen, a SCBI research biologist. "SCBI has a long history with the maned wolf, both in terms of studying the biology and maintaining the genetic diversity." This particular litter brings us one step closer to achieving those goals.

## Frozen Coral Repository

**R**esearchers from the Smithsonian Conservation Biology Institute, Hawaii Institute of Marine Biology, and other partnering organizations spent two weeks in Australia last November. They collected sperm and embryonic cells from two species of coral during spawning. The team then froze the samples, creating the world's frozen repository of Great Barrier Reef corals.

Though they remain alive, the banked cells are in stasis, and researchers can thaw the frozen material in one, fifty or, in theory, even a thousand years from now. Scientists could then place them back into ecosystems to infuse new genes into natural populations, helping to enhance the health and viability of wild stocks.

The new repository comes at a time when coral reefs are disappearing rapidly because of pollution, climate change, ocean acidification; and destructive fishing practices. Researchers believe that coral reefs and the marine creatures that rely on them may die off within the next fifty to a hundred years, causing the first global extinction of a worldwide ecosystem since pre-historic times.



MIKE HENLEY/NZP



COURTESY OF DRS. A. HAYWARD AND A. NEGRÍ, AUSTRALIAN INSTITUTE OF MARINE SCIENCE



## Grant for Elephant Research

**L**ast December, the International Elephant Foundation announced a \$52,000 grant to help fund the National Elephant Herpesvirus Laboratory at the Smithsonian's National Zoo. The grant will be used to further research and understanding of elephant endotheliotropic herpesvirus (EEHV). The National Zoo was the first to identify EEHV and has been committed to finding treatment and prevention of this often fatal disease.

## New Kiwi Chick

**O**n December 11, the Smithsonian's National Zoo welcomed one of the world's most endangered species, a brown kiwi. The emergence of this fuzzy, flightless bird was the sixth successful kiwi hatching in the Zoo's history. Only five zoos outside New Zealand have successfully bred kiwis. The National Zoo was the first to do so, back in 1975.

Named Omana by the New Zealand ambassador, the Zoo's new chick, a female, weighed just 229 grams upon hatching. She is healthy, reports keeper Kathy Brader. She also enjoys snuggling and having her head scratched.



SMITHSONIAN'S NATIONAL ZOO



JESSIE COHEN/NZP



JESSIE COHEN/NZP

## Tiger Protection Training in Thailand and Nepal

**T**his past January, the Smithsonian Conservation Biology Institute's Tiger Conservation Partnership (TCP) launched training programs in Thailand and Nepal. Staff from tiger reserves learned how to form "smart patrols"—teams equipped with the latest technology and expertise needed to combat poaching.

"If we are going to save tigers, we have to stop the poaching," says TCP program director Mahendra Shrestha. "We're working to help protected areas develop and implement strategic anti-poaching systems on the front lines, which will be crucial to tigers' recovery."

After completing the training course, participants will patrol their reserves using GPS technology—recording signs of poaching, encroachment, legal human activity, tigers, and tiger prey. Patrol headquarters in each country will take the information and convert it into maps. The maps will help patrollers identify hotspots of illegal activity so they can intervene.



COURTESY OF PAMELA BUCKLINGER

## Zoogoer's Winning Writer

**Pamela Bucklinger**, who writes the Creature Feature animal profiles for *Smithsonian Zoogoer*, has always been a winner in our view, but now it's official. Last November, her article "Bringing Up Vultures" appeared in *Ranger Rick*. Its editors were so impressed with Bucklinger's work

that they awarded her the Trudy Farrand and John Strohm Magazine Writing Award for 2011.

Not surprisingly, Bucklinger was thrilled. "I love writing," she says, "and it was an incredible honor to receive this award from one of my favorite magazines."

Bucklinger's contributions to FONZ don't end with her popular profiles. She built our award-winning children's curriculum and works on our marketing team, recruiting corporate sponsors. She also manages the selection of more than a hundred restaurants for ZooFari.

## Gingerbread Contest Winners

Winners of the Gin-GRR-bread Kids' Farm Habitat Contest were announced during ZooLights last December. The contest, sponsored by Starbucks, drew 23 entries, which were judged on aesthetic appeal and animal comforts. The judges included pastry chefs from the White House.

The following winners will enjoy a behind-the-scenes tour of the Elephant Barn and watch as the Zoo's Asian elephants get their morning baths:



SMITHSONIAN'S NATIONAL ZOO

- **FAMILY GROUP CATEGORY**  
**JoAnn Willis and her son Zachary of Arlington, Virginia**
- **ADULT INDIVIDUAL CATEGORY**  
**Barbara Mattson of Vienna, Virginia**
- **ADULT TEAM CATEGORY**  
**Randy Spicer and team of Sterling, Virginia**



SMITHSONIAN'S NATIONAL ZOO



SMITHSONIAN'S NATIONAL ZOO

## NEW CHEETAHS

**Two cheetahs recently arrived from the Ann van Dyk Cheetah Centre.** These youngsters, just

a year and a half old, are causing quite a stir at the Smithsonian Conservation Biology Institute headquarters in Front Royal. "They're very frisky, very playful," says lead cheetah keeper Lacey Braun.

Sanurra (left), a curious female, isn't scared of anything. She loves to run and isn't intimidated by lawn mowers or people. Sampson (above), an equally active male, is looking for a playmate. In the wild, cheetahs form strong male groups called coalitions. Keepers are try-

ing to establish a coalition between Sampson and Nick, another cheetah in residence. The two males are only six months apart in age, so keepers hope they will make a good coalition.



GERHARD HOFMANN, HOFMANN & SCHEFFER PHOTOGRAPHY

## Urban Songbirds Change Their Tune

While humans have adapted to the humming noises of city life, some songbirds find it difficult to communicate. Urban sounds are drowning out their calls. This poses a huge problem, explains scientist Peter Marra of the Smithsonian Migratory Bird Center (SMBC): "In order to survive and reproduce, it is imperative for birds to be able to transmit their signals to each other."

Marra and his SMBC colleagues recently completed a study of urban songbirds. They found that some birds are altering their calls. In areas with lots of general noise, birds tended to sing higher notes. In places with many buildings (whose hard surfaces reflect noise), birds tended to produce lower notes.

"This is just another example of how humans continue to impact wildlife," Marra says. "We now need studies to determine if these changes in song translate into differences in reproductive success."

You can support SMBC's work—and get some nice benefits—by joining the Smithsonian Migratory Bird Club. Learn more at [fonz.org/birdclub.htm](http://fonz.org/birdclub.htm).



MITCH SHIRE/NZP

## Earth Day at the Zoo! It's a Party for the Planet, and you're invited.

April 22,  
11 a.m. to 3 p.m.

Join us for family-friendly entertainment, hands-on activities, talks by animal keepers, and more.

Learn more at [fonz.org/earthday.htm](http://fonz.org/earthday.htm).

## Mark Your Calendar

### Mar. 27 **Snore & Roar Priority Registration**

Members at the contributing level (\$100) or above can register at [fonz.org/snoreandroar.htm](http://fonz.org/snoreandroar.htm).

### Apr. 1-30 **Kids' Farm Month**

Sponsored by State Farm®. See ad on page 26.

### Apr. 1 **Zoo Summer Hours Begin**

Zoo buildings will be open from 10 a.m. to 6 p.m.

### Apr. 3 **Snore & Roar General Registration**

All members can register at [fonz.org/snoreandroar.htm](http://fonz.org/snoreandroar.htm).

### Apr. 9 **Easter Monday: African American Family Celebration**

Learn more at [fonz.org/easter.htm](http://fonz.org/easter.htm).

### Apr. 10 **FONZ founded, 1958.**



MITCH SHIRE/NZP

## Naming Our Octopus

**W**hen the Zoo's newest giant Pacific octopus arrived last November, we asked readers of the *Washington Post's* KidsPost page to submit names for it. More than 300 entries arrived. Zoo keepers whittled the list down to four finalists. They then placed the four names inside plastic balls, which they deposited into the octopus's tank. The plan was for the animal to choose its own name by touching one of the balls.

But life doesn't always go according to plan. Though octopuses are usually curious, the animal declined to touch any of the balls. So a blindfolded keeper fished one out with a net instead. The winning name: Pandora. It was submitted by ten-year-old Trinity Kimberly of Sterling, Virginia. "I'm very excited because they chose my name, and it'll be a good name for this octopus," she says. "They described the octopus as curious, and Pandora means curious."



# Mating MYSTERIES

BY SARA BLOOM LEEDS

**Cheetahs are notoriously difficult to breed in zoos. Smithsonian scientists are working to change that.**

**T**here's something pure and primal about the fastest land animals on Earth. It's hard not to feel a sense of awe and appreciation for these magnificent cats. After all, cheetahs can be considered a pinnacle of evolution—vital and efficient predators within their ecosystems that also exude a distinct grace and beauty.

Yet these sleek, spotted cats also exude a sense of vulnerability. It may be the black marks that run like tear tracks down their faces. Or is it the haunted look a cat assumes as it pauses and scopes out its surroundings?

Either way, that look is fitting, for the fleet felines are indeed vulnerable, as classified by the International Union for



# Mating MYSTERIES

Conservation of Nature. Fewer than 10,000 survive in the wild. With such a small population, inbreeding is a growing concern. It can raise cubs' mortality, lower animals' resistance to disease, and cause other problems.

Inbreeding, of course, is also an issue for cheetahs in human care. There are 284 adult cheetahs in 53 zoos throughout North America. For that population to be sustainable—that is, capable of maintaining itself with reproductively viable individuals—at least 30 cubs would need to be born each year. Last year, 12 cubs were born in the United States.

"If we do not change the way we are managing the North American cheetah population," explains Adrienne Crosier, a cheetah biologist at the Smithsonian Conservation Biology Institute (SCBI), "it will be extinct within the next 50 years."

## A Dearth of Births

Crosier is determined not to see that happen. For ten years, she's been driven to untangle the mysteries of these complex, captivating cats. "Our tagline," she says, "has always been that the more you know about a species' biology, the better equipped you are to ensure its survival in the wild and in zoos."

There are mysteries aplenty to occupy Crosier and her SCBI colleagues. "We've got at least a half-dozen pretty major projects going on," she says, "all of which have never been looked at in cheetahs before."

One of the key mysteries scientists hope to solve is why it's so unfathomably difficult to persuade cheetahs to breed in a zoo setting. North American cheetahs have excellent genetic variation as well as top-notch housing and veterinary care. Yet only 23 out of 111 females have had offspring.

One problem, scientists learned, was a lack of knowledge about wild cheetah behavior. Most institutions that possessed a pair of cheetahs figured that breeding—and cubs—would result from putting the male and female in the same enclosure. Sometimes that happened, but most times it didn't. As Crosier puts it, "That's just not the way cheetahs typically operate."

We now know that females in the wild are almost always solitary, seeking out

other cheetahs only to mate. Males, in contrast, form coalitions, or groups, with their brothers and stay together for life. So zoos have learned to keep males and females apart. This knowledge underlay the design of both the Cheetah Conservation Station at Rock Creek (where cheetahs have bred

researchers to know when a female becomes physically mature and ready to breed in the first place.

Scientists believe a wild female in estrus marks her territory with urine and feces, the smell of which alerts males to her receptivity to mating. It is virtually



Nick, a cub born at Front Royal in 2010, was raised by a foster mother, Zazi.

successfully) and the Cheetah Science Facility in Front Royal (also a successful breeding site).

## In the Mood?

Another challenge is that female cheetahs do not have regular estrous cycles, and it is extremely difficult to tell when they're in heat. Many show no physical signs of estrus, at least not that humans can detect. They may not even engage in any mating behaviors, such as rolling, tail flagging, rubbing against things, or standing to be mounted—even in front of males. Therefore, it is also extremely difficult for

impossible to measure hormone levels within urine and fecal samples for indications of estrus. So humans often have to simply trust that a male cheetah might be a better judge.

The male's highly attuned sense of smell helps him determine when a female is ready to mate. When he thinks she is, he will make specific vocalizations, called "stutter-barking." When that happens, staff undertake a "fence-line" introduction, allowing the cats to see and smell each other through a fence.

If the male becomes excited, and the female is receptive (or at least does not

appear aggressive), staff attempt to let the animals in together. The staff closely monitor what happens—which may be nothing at all. After all, how this species chooses mates is still another aspect of cheetah reproduction that we do not yet quite fully understand.



MEGHAN MURPHY/NZP

There are mysteries aplenty to occupy Crosier and her SCBI colleagues. "We've got at least a half-dozen pretty major projects going on," she says, "all of which have never been looked at in cheetahs before."

this, the animals can still produce normal hormone levels and eggs.

This is promising news because it means that eggs from an older female cheetah can potentially be collected and fertilized by sperm from a genetically ideal male in the lab and then implanted into a younger female surrogate who can carry the resulting embryos to term. Embryo transfer, successfully performed in other species, has never been attempted in cheetahs. If successful, it would be a huge step in not only producing more cubs, but keeping the gene pool as diverse as possible to prevent inbreeding among the younger generation.

Researchers are already hard at work examining how hormones control a cheetah's ovarian function, as well as the hormonal preparation that would be required for surrogates to receive and carry early embryos. Crosier and her team are about halfway done with this research. "Once we have that figured out," she says, "the next step would be to perform the actual procedure."

### Old Eggs in New Wombs

Last summer, SCBI scientists and collaborating researchers from North America and Namibia published results of a five-year study that solved a key cheetah mystery: the tendency of older females to have trouble reproducing.

By analyzing hormones, eggs, and the uteruses of cheetahs throughout the country, the team discovered that when a female cheetah turns eight or so, her uterus will likely begin to suffer from abnormal cell growth, cysts, and infections that prevent pregnancy. However, the researchers also discovered that, despite

If all goes well, they may be ready to do so within the next year.

Crosier and her team have also been trying to perfect artificial insemination techniques for cheetahs, a task with which scientists around the world have wrestled for more than 25 years. Because cheetah biology is so complex, this is still proving to be challenging.

"One of the biggest challenges to generating fast results is sample collection," says Crosier. She explains that the researchers travel widely both within the country and internationally in a mobile research lab. This lab-on-wheels has all the equipment needed to do on-site semen collection and artificial insemination. Samples also often have to be shipped all over the country once collected. "There's a lot to coordinate," she says.

Other reproductive research involves examining whether lower semen quality is associated with a cheetah's social situation. For example, it is suspected that a dominant animal may often suppress the reproductive hormones of others, and this is believed to occur to some degree in both males and females. But how this occurs and to what extent is unknown.

Finally, researchers are also examining cheetah endocrinology, their behavior, and genetic diseases among family groups. They also seek to determine puberty onset in both males and females.

### Built for Breeding

Scientists aren't just amassing data. They're putting what they learn into practice at eight special breeding centers in the United States, along with one in Toronto. The Zoo's center, at SCBI headquarters in Front Royal, opened in 2007.

"An animal's welfare often correlates directly to its reproductive success," says Tony Barthel, curator of the Zoo's Cheetah Conservation Station, "and cheetahs may just be the poster child for that statement."



MEGHAN MURPHY/NZP

# Mating MYSTERIES



Zabini is one of three brothers who came to the Zoo from a conservation center in Florida in 2007.

MEHGAN MURPHY/NZP

These facilities do their best to mimic conditions in the wild. Individual females are provided with roomy enclosures that are separated from males by distance and visual barriers. “An animal’s welfare often correlates directly to its reproductive success,” says Tony Barthel, curator of the Zoo’s Cheetah Conservation Station, “and cheetahs may just be the poster child for that statement.”

This new approach seems to be paying off. More than 90 percent of North America’s cheetah cubs are born at these breeding centers. So what went right? A key factor is that the centers have room for a variety of males and females. This allows researchers to mix and match genetically diverse males and females, allowing them to choose whomever they prefer, and thus increase the likelihood of a mating.

“If a female is in estrus and doesn’t like a certain male,” says Crosier, “you can try introducing her to another. You can also match young inexperienced animals with older more experienced ones. It is very difficult to breed young inexperienced males and females with each other because often neither cat knows what to do.”

## Smithsonian Successes

So far, there have been five litters at the National Zoo—two at Rock Creek and three, more recently, at Front Royal. Twice,

## A Male Mystery

**M**ale cheetahs tend to produce high amounts (around 75 percent on average) of deformed sperm cells, a condition known as teratospermia. Researchers want to know the genetics behind this condition, which has never before been examined in cats. They are working in conjunction with the National Cancer Institute to develop ways to increase and maintain male fertility. Their work includes examining semen and sperm quality and metabolism.

Researchers are also working on developing better methods of cryopreservation, or freezing sperm. In addition, the Zoo is looking into obtaining sperm and embryos from wild-born animals in Africa.

Zoo cheetahs have given birth to five cubs. This is striking because litters usually have two to four members.

Tragedy nearly struck the first litter in Front Royal. In December 2010, Amani, a new mother, gave birth to a single cub, dubbed Nick. That posed a problem, because cheetah mothers require the stimulation of nursing cubs to produce milk. One cub is not enough for this, and single cubs generally die of malnourishment.

Luckily, Zoo staff knew that Zazi, an experienced mother, was also due to give birth. So they made the decision to hand-rear Nick until her litter was born. Then they hoped to introduce him into her litter.

That was risky. A mother might not accept another cub, ignoring or even killing it. She might even abandon the entire litter. Keepers knew, however, that Zazi was a very tolerant individual who'd been a good mother in the past. There seemed a good chance that she would accept a foster cub.

From the time Nick was born, keepers took careful measures to prepare him to be introduced to Zazi. "We were bottle-feeding him with fake fur around the nozzle

to stimulate nursing and his kneading response," says lead cheetah keeper Lacey Braun. "We also had him sleep in Zazi's urine-soaked bedding so that he would smell familiar to her."

Ten days later, Zazi ended up having a single cub as well. Soon afterward, staff members put Nick in with her and baby Maggie. They crossed their fingers while holding their breaths.

"I was very anxious about the foster," Crosier says. Braun was nervous too when Nick was put into the nest box. But the story ended happily, and Zazi did indeed take care of both, proving to be the excellent mother that everyone thought she'd be. In addition, Nick still has a strong bond with the humans who initially raised him. He purrs when they come near and enjoys their company.

"It's very rewarding," says Braun. "My favorite part of the job is watching the cheetahs run and play with each other. The cubs keep me laughing all day long." **SZ**

— SARA BLOOM  
LEEDS *was an intern in the Zoo's Office of Communications.*

BELOW: Our cheetah facility in Front Royal.  
BOTTOM: The Cheetah Conservation Station at Rock Creek.



MEGHAN MURPHY/NZP



MEGHAN MURPHY/NZP

Animal enclosures that mimic the wild don't just look pretty. They help keep animals healthier and happier.

**P**atiently waiting, a fishing cat perches at the water's edge. He uses his webbed paws to tap the surface of the pond, imitating the motions of an insect.

A hungry fish rises to the top of the pond, looking for dinner. Bad move. In a flash, the cat lunges beneath the surface and devours the fish.

The Smithsonian's National Zoo goes to great lengths to create moments like that. This scene took place not in the wild, but within the fishing cat exhibit on Asia Trail. Part of the Zoo's mission is to provide its animals with the highest quality care, which begins with creating an enriched environment for every animal in residence.

"All enrichment begins with looking at an animal's natural environment," explains Heidi Hellmuth, curator of enrichment and training. "Enrichment keeps animals psychologically and physically active. They all have to problem-solve and deal with challenges in their natural environment.

We are allowing them to be what they were meant to be."

### Drawing on Nature

Making sure an animal's exhibit closely resembles its habitat in the wild can often require a lot of brainstorming. The Zoo has had multiple opportunities to begin from scratch, creating state-of-the-art exhibits and amply preparing for future residents. On other occasions, current exhibits are altered to maintain or further enrichment.

One crucial factor in maintaining a wild-like exhibit is climate control. Environments vary greatly from species to species, and in the wild, animals must cope with changes in the weather. For most of our indoor residents, climate control can be as simple as turning on a heat lamp for an iguana. Sometimes, though, keepers have to get a little more creative when creating weather enrichment for indoor animals. Doing so can include tweaking the temperature of the



ANN BATDORF/NZP

A photograph of two orangutans walking across a high zipline cable. Below them, a large crowd of people, including children and adults, are gathered on a paved area, watching the animals. In the background, there is a green metal structure with a staircase and a glass-enclosed viewing area. The scene is set outdoors with trees and a clear sky.

# Enriching Our Exhibits

BY ALLIE KILLAM AND MARK TUAI

Zoogoers watch orangutans travel the O Line between the Great Ape House and Think Tank.

MEGHAN MURPHY/NZP

# Enriching Our Exhibits



MEHGAN MURPHY/NZP



A sloth bear (left) forages in its habitat, seen here

MEHGAN MURPHY/NZP

sea anemone's tank or altering the amount of water available to desert animals.

For our outdoor residents, such as the flamingo flock, which hails from a more tropical region, things are a bit more complicated. "We find ways to extend their seasons," explains Brandie Smith, the Zoo's senior curator for mammals. For the Asian small-clawed otters, this means a heated pool maintained at roughly 70° and hot rocks (with interior heat coils) scattered throughout the enclosure. Whenever the temperatures are unbearable, animals have the option of venturing indoors.

The shirt-drenching rainforest in Amazonia is a prime example of the Zoo's

dedication to animal comfort. Kept at roughly 75° year-round, Amazonia relies on the sun and white-washed windows to create a greenhouse effect that traps heat and allows its inhabitants to feel right at home.

Another key factor in creating an enriched exhibit is the layout of the space. "We design it with the knowledge of animal behavior in the wild," explains Hellmuth. "How do they utilize their environment? It's incumbent upon us to modify that based on individual animal response."

For example, a beaver in residence has a naturalistic habitat that provides access to plenty of logs. He chews them, but he has also developed a habit of gnawing on a

metal pole. While the gnawing isn't hurting the beaver, the Zoo is currently working on furnishing a replaceable wooden pole cover so the beaver may continue chewing on his upright "tree trunk." Enrichment is achieved by paying careful attention to the animals. Even though the beaver has access to all the wooden logs he could dream of, he still wanted to chop down a tree.

## Home Improvements

Maintenance supervisor Stephen Micciche works one-on-one with keepers, scientists, and behaviorists at the Zoo. He steps in when the keepers voice a need. "We do a lot of problem-solving, building prototypes, and installing," he explains.

His team's creations vary from simple parrot toys to rock walls and caves. The sloth bears currently aren't spending much time in their cave, so the Zoo's mason shop is coming up with a design to extend the roof of the cave so a bear will still be on exhibit but will feel secure and private, as well as protected from the elements.

Creating a naturalistic exhibit that still provides public viewing is "not easy to balance," says Hellmuth. Because the public must work harder to see the animals, the Zoo is concentrating on ways to educate the public and show them where to look. Zoo volunteers are always happy to point out where the animals are "hiding" to visitors.

In certain cases, providing an enriched environment actually makes the inhabitants more visible. Visitors can witness animals foraging for food or marking territory. Perhaps most spectacularly, zoogoers can watch the orangutans traverse the O Line just as

they would move among the trees in their wild arboreal habitats.

Both Amazonia and the Small Mammal House hold mixed-species exhibits. By having multiple residents in one location, the environments closely resemble the proximity of other animals in the wild. The National Zoo illustrates its commitment to animal caretaking not just by providing these complex habitats, but by constantly striving to provide animals with opportunities to use their natural abilities. Instead of feeding animals in the same place at the same time every day, for instance, keepers hide food in different locations to encourage foraging.

### Acting Naturally

Mindy Babitz, a keeper on Asia Trail, focuses on activity patterns in the wild as a basis for providing enrichment. “Life in the wild is hard,” she explains. Animals have to find food, seek shelter, and worry about predators. The animals at the Zoo don’t have those worries, so the keepers must come up with ways to keep them exhibiting normal behaviors. “We try to make them work for their food!” she adds with a laugh.

For the sloth bears, food is wrapped up in paper bags, and then left buried in various digging pits in the yard. Because they are accustomed to foraging, the bears receive numerous feedings in various locations to keep them moving throughout the day.

Wild cats tend to conserve their energy until feeding. Since most Zoo cats are unable to hunt within their exhibits, the staff find other ways for them to exhibit natural behaviors, such as tearing through a cardboard exterior to get to the meat inside. Luke, our adult male lion, once attacked a cardboard pig and repeated all the motions a wild lion would when attacking prey, including a neck swipe.

At times, keepers and volunteers move rocks, trees, and other structures around in the exhibit as if an intruder came through their territory. They then observe how the animal reacts to its changed enclosure, perhaps by marking its territory.

Other times, animals do the rearranging themselves. Francois, a male sloth bear, spends hours moving objects from his outdoor exhibit to his indoor enclosure.

On one occasion, he ripped a tree out of his yard. The keepers left it alone because they wanted to encourage Francois to exhibit this natural behavior. Over the span of two weeks, he dismantled the limbs and branches and dragged them all into his den.

### New Trail, New Challenges

Several years ago, the Zoo’s aged seal and sea lion pool began losing water. Rather than merely patch it up, the Zoo decided to embark on a major overhaul. The revamped exhibit, centerpiece of the new American Trail, will include four holding pools so that animals can move around, which encourages social enrichment. It will also allow animals to find a quiet spot and be alone—which, Hellmuth explains, animals need as much as people do.

The new pools will feature complex topography, including rock work and underwater arches. There will be more viewing spaces for visitors. The new pools will be able to hold salt water instead of traditional fresh water. The residents can live in either, but salt water is more naturalistic.

Creating a naturalistic exhibit doesn’t always lead to immediate happiness, however. For the American Trail exhibit, the Zoo recently acquired a raven that was previously housed indoors. Keepers and maintenance staff worked together to come up with a suitable structure to provide comfort and warmth in the bird’s new outdoor enclosure.

The bird didn’t like it. So the team reworked the structure, extending the platform on which the raven could perch. The raven still didn’t like it. The third structure was under construction when this story went to print. It included an extended roof and a heating system.

All this may seem like a lot of effort for one bird, but the Zoo makes animal comfort a priority. We humans like to have the choice of going to the movies or hiking over the weekend as a way to enrich our lives. So keepers provide different types of shells for the hermit crab. “We do it for ourselves, why wouldn’t we do it for the animals we’re responsible for?” asks Hellmuth. With the Zoo’s support, she is working to establish enrichment standards for each species in our collection.

### Better for Both

Creating facilities and homes that are interactive and reflective of an animal’s wild environment keeps them healthy both physically and mentally. Keeping animals challenged and stimulated benefits zoogoers too. Asian elephant curator Tony Barthel explains, “The animals are here to connect with people, and if visitors can see the animals doing things they naturally do in the wild, enriching exhibits become an educational tool as well.” **SZ**

— ALLIE KILLAM *and* MARK TUAL *were* Smithsonian Zoogoer *interns*.

### Enrich Our Enrichment

One of the challenges of enriching Zoo animals’ lives is the cost of enrichment items, which are funded solely through donations. A single toy for a tiger may cost several hundred dollars and survive only half an hour of killer pouncing.

Zoo staff have compiled a list of items needed for enrichment efforts. They range from simple bits of hardware and household items to tools and appliances. You can learn more at [fonz.org/wishlist.htm](http://fonz.org/wishlist.htm).



MEGHAN MURPHY/NZP

For  
40 years,  
giant  
pandas  
have been  
the star  
attraction  
at the  
National  
Zoo.  
Relive their  
roly-poly  
history  
in this  
portfolio.

**LIVING LOAN** Mei Xiang (seen here) and Tian Tian arrived at the Zoo in 2000 and have remained here since. Unlike the Zoo's first pair of pandas, the new set is on loan. In exchange, the Zoo contributes funds and expertise toward conservation efforts in China.



# a Place for PANDAS

## **Sitting next to Chinese Premier Zhou Enlai at dinner in Beijing in February**

**1972**, First Lady Patricia Nixon mentioned her fondness for giant pandas. Eager for better relations with the U.S., Zhou knew just what to say: "I'll give you some."

He did. Ling-Ling (a female) and Hsing-Hsing (a male) arrived at the Zoo soon afterward, and Mrs. Nixon formally welcomed them on April 16. The nation's capital has never been the same since.

Over the next 20 years, Ling-Ling and Hsing-Hsing produced five cubs, none of which lived very long. Those heartbreaks, and the hunger for a cub, helped spur Zoo scientists to become pioneers in exploring the still-mysterious workings of giant panda reproduction.

That research effort outlived Ling-Ling and Hsing-Hsing and bore fruit with the Zoo's next pair of pandas, Mei Xiang (a female) and Tian Tian (a male). They arrived in 2000. Five years and several artificial insemination procedures later, Mei Xiang gave birth to a male, Tai Shan. He quickly became the apple of Washington's eye, which shed tears when he departed in 2010 for a reserve in China.

Today, the Zoo continues its efforts at producing a new cub. This is no small chal-

lenge, given that giant pandas ovulate just once a year, for 24 to 72 hours. To identify the opening of that tiny window, animal-care staff carefully watch Mei Xiang for any sign of estrus, and scientists monitor hormones in her urine.

At press time, a new breeding season was just beginning. Visit [nationalzoo.si.edu](http://nationalzoo.si.edu) to watch the unfolding of this newest chapter in the Zoo's proud panda history.

**GORGEOUS GIFTS** Ling-Ling (left) and Hsing-Hsing (right) arrived at the Zoo in 1972. They delighted Washingtonians for the next two decades. Ling-Ling died of heart failure in 1992. Hsing-Hsing lived until 1999, when he was euthanized after kidney disease and other ailments threatened his quality of life.

JESSIE COHEN/NZP

JESSIE COHEN/NZP



### BIG EATERS

Tian Tian (seen here) and Mei Xiang each consume more than 50 pounds of bamboo a day. This mass consumption is necessary because bamboo—the giant panda's staple—offers little nutrition. Zoo pandas also receive high-fiber biscuits and produce.

JESSIE COHEN/NZP

# a Place for PANDAS



**THE CUB WHO LIVED** At 3:41 a.m. on July 9, 2005, Mei Xiang gave birth to a hairless, tiny cub later named Tai Shan. He did what no panda offspring at the Zoo had ever done—survive. Just shy of a month later, when this image was taken, Tai Shan weighed 1.82 pounds.

## NATURE'S NUDGE

Each year, Mei Xiang and Tian Tian—who generally live apart, as giant pandas do in the wild—come together to mate. To boost the chances of conception, Zoo staff also artificially inseminate Mei Xiang.



MEGHAN MURPHY/NZP



JESSIE COHEN/NZP

**SCIENCE PROJECT** Each day, dedicated volunteers called Panda Watchers monitor the black-and-white bears' behavior via closed-circuit television. Over the years, they've amassed mountains of data on the species, which is notoriously difficult to study in the wild.

# a Place for PANDAS

**STAYING ON** Zang Chunlin, secretary general of the China Wildlife Conservation Association, and Dennis Kelly, director of the Smithsonian's National Zoo, signed an agreement on January 20, 2011. It extended the Zoo's giant panda program by five years.



MEIGAN MURPHY/NZP



DAYNA SMITH/NZP

**SUPPORT FOR SCIENCE** Last December, David M. Rubenstein (second from right), a Smithsonian Regent, donated \$4.5 million to support the Zoo's work with giant pandas. His generous gift will fund conservation efforts in China, reproductive science, professional training programs, giant panda care at the Zoo, upgrades to the Zoo habitats, and public education.

**MOTHER AND CHILD** Mei Xiang proved an effective, affectionate mother. On December 12, 2005, she encouraged Tai Shan as he took his first steps into the giant pandas' outdoor enclosure.



JESSIE COHEN/NZP





# Kids' Farm Celebration

coloring page

## April is Kids' Farm Month!

Celebrate Kids' Farm with special activities and events:

Daily Kids' Farm Animal Encounters, presented by State Farm®

Earth Day "Tend the Garden" activity

Keeper talks and demonstrations

Storytimes

Weekend giveaways

And more!

## Start celebrating

Color this page and bring the farm to life. Members, bring your completed coloring page to the Lion/Tiger Information Booth all month long for a special treat!

## Thank you!

To State Farm®, FONZ members, and the many supporters, without whom, Kids' Farm would not be open today.

## Find out more

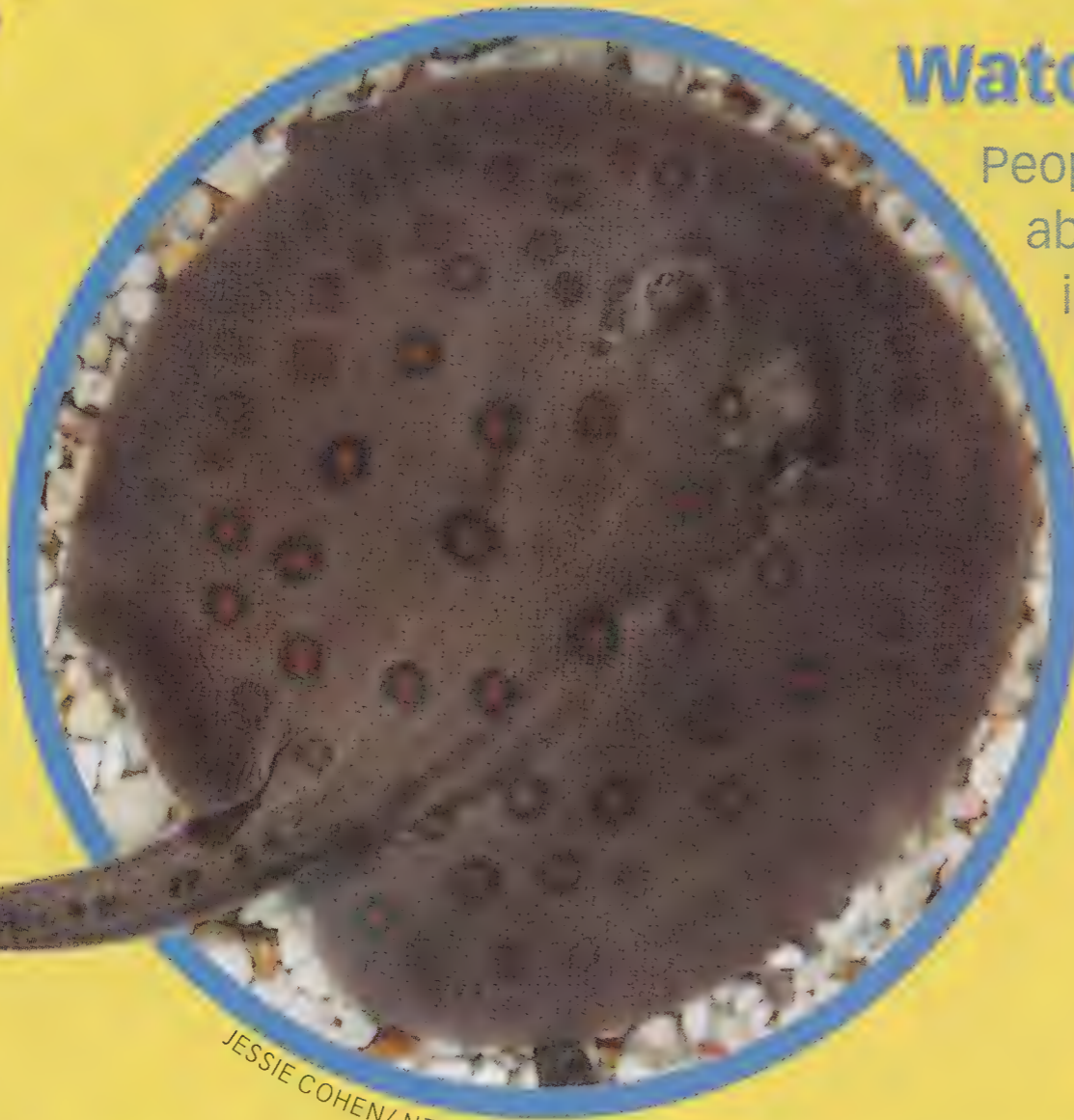
Visit [fonz.org/kidsfarm.htm](http://fonz.org/kidsfarm.htm)

**KIDS' FARM** SPONSORED BY **State Farm**

## BEAST BITS

### Watch Your Step!

People swimming in the mighty Amazon often worry about piranhas, but another fish actually causes more injuries. That's the freshwater stingray. This flat fish generally doesn't bother people. It just lies quietly on the riverbed. Now and then, however, someone steps on a stingray by mistake. Bad move. The stingray has a sharp spine at the end of its tail. The spine injects poison into the person's foot, causing great pain and possible damage. *You can see freshwater stingrays in Amazonia.*



JESSIE COHEN/ NZP

### Colorful Language

Chameleons are famous for their ability to blend in with their surroundings. But the main reason these lizards change color is to reflect their emotions. Turning a bright shade can be a chameleon's way of saying "I'm interested in you" or "Get out of my territory." It can also mean that the animal is frightened or angry. *You can see a chameleon at the Reptile Discovery Center.*



JESSIE COHEN/ NZP

### Zoo Clue

*This animal grows its own food!*  
Learn more at  
[nationalzoo.si.edu/goto/zooclue](http://nationalzoo.si.edu/goto/zooclue).



MEGHAN MAUREWYNZP



CREATURE  
FEATURE

On  
the  
Prowl  
With  
**Owls**

BY PAMELA BUCKLINGER

Whooooooo  
are these awesome  
creatures of the night?

### On the Night Shift

Owls are raptors, or birds of prey. That means they hunt for animals to eat. Other birds of prey, such as eagles and hawks, hunt during the day. Not most owls. They wait until the sun goes down, then they become nighttime eating machines. Huge eyes give them vision ten times better than a human's. Powerful ears and almost silent flight allow an owl to sneak up on an animal. Then, gotcha! Fearsome talons grab the prey, and dinner is served.

### Owl Over the World

There are more than 200 different types of owls, and they live on every continent except Antarctica. Most owls live in trees, but the burrowing owl shares tunnels underground with small mammals and reptiles. Snowy owls, which live in very cold parts of the world, have built-in snow boots. Thick feathers on their feet keep them warm and dry.

### Eyes on the Prize

Owls can't move their eyes from side to side or up and down. So their flexible necks come in handy. Owls can turn their heads almost all the way around and nearly upside down. That helps them search for dinner. Owls also rely on their keen ears to help them locate exactly where their prey is.

### Mealtime Manners

People sometimes talk about eating like a bird, but your parents won't be pleased if you eat like an owl. For starters, most owls swallow their food whole. Then they regurgitate, or throw up, the parts they can't digest, such as bones, feathers, and fur. This stuff comes out in a sort of ball, called an owl pellet. The birds use these pellets to make their nests more comfortable. Scientists also study them to learn what an owl has eaten.

### Famous Feathered Friends

Harry Potter's snowy owl, Hedwig, created a flutter of new interest in owls around the world. Yet real owls don't make good pets, and owning them is generally illegal in the U.S. You may be familiar with Woodsy Owl, a cartoon character who teaches kids about the environment. Created by the U.S. Forest Service, he encourages children, "Give a hand—care for the land."

### At the Zoo

Swoop down on the Bird House and check out our collection of owls—including barred, burrowing, and mottled owls.

## YOUR TURN Are You Owl Eyed?

Look sharp and see if you can spot the ten kinds of owls hiding in this puzzle. Names go forward, backward, up, down, and diagonally.

ANSWERS:

|           |         |
|-----------|---------|
| Snowy     | Horned  |
| Pygmy     | Spotted |
| Screech   | Tawny   |
| Burrowing | Eagle   |
| Elf       | Barn    |

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| G | N | I | W | O | R | R | U | B | O |
| A | K | S | N | O | W | Y | G | W | A |
| D | V | Y | C | G | U | L | Z | D | M |
| Z | E | B | H | R | D | U | E | W | F |
| Q | A | N | S | K | E | T | G | M | L |
| F | G | E | R | A | T | E | P | T | E |
| B | L | C | Y | O | B | H | C | U | N |
| P | E | X | P | D | H | Y | R | H | W |
| Y | V | S | I | E | L | A | O | I | B |
| G | I | Y | N | W | A | T | G | J | A |
| M | R | T | J | S | E | I | O | X | R |
| Y | H | N | P | C | Q | S | F | P | N |

# SMITHSONIAN **zoogoer** kids CORNER

## ZOO CREW

### Learning for a Living

**Almost everyone knows the Zoo. But you may not have known that we have a second, much bigger campus in Front Royal, Virginia. It's the headquarters of the Smithsonian Conservation Biology Institute (SCBI). Lots of cool things happen there, and education specialist Laura Linn works hard to tell people about them.**

**A**fter getting a zoology degree in 2007, Linn moved to Namibia to work at the Cheetah Conservation Fund. She was able to participate in research, education, and veterinary care. She even got to raise an orphaned cheetah! While learning about all the factors that go into wildlife conservation, she discovered how much she loved teaching people about animals.

Linn came to the National Zoo in 2009. One of the main parts of her job is to inform the community about what SCBI does. "I have to know a little bit about everything," she says. She works with animal care staff and scientists very closely. Then she shares what she's learned with the community. That can be a challenge, since SCBI is generally not open to the public.

One way Linn provides information is by arranging lectures. There are about ten lectures each year at SCBI. Speakers don't just discuss the animals on site. They explain what Smithsonian scientists are doing around the world. This broad focus, says Linn, is what makes SCBI "such a unique facility."

Linn doesn't just wait for people to come to lectures, though. She frequently visits schools, teaching kids about everything from saving endangered animals to how having a tail helps an animal survive. Schools invite Linn back year after year, and she's glad to go. She finds school visits rewarding, because they make students want to get involved in science and conservation.

They also make kids want to check out SCBI, and Linn helps make that possible for some students and families. She organizes the FONZ Nature Camp and Conservation Campouts. These give people the opportunity to tour animal areas, hike, enjoy campfires—and learn. For example, Nature Camp students take part in a GPS scavenger hunt that teaches them about protecting species and ecosystems around the globe.

From visiting classrooms to organizing lectures to arranging camps to whatever else comes along, Linn is always busy. She likes that. It means she's always teaching—and always learning.

— Allie Killam



COURTESY OF LAURA LINN



COURTESY OF LAURA LINN



COURTESY OF LAURA LINN



Smithsonian Craft Show

30

Celebrating the Creative Spirit of America



**30<sup>th</sup> Anniversary**

**April 19 - 22, 2012**

**Preview Night Benefit**

**April 18**

**National Building Museum**

**Washington, DC**

*flock  
to the  
show!*

[www.SmithsonianCraftShow.org](http://www.SmithsonianCraftShow.org)

Produced by the Smithsonian Women's Committee to support education, outreach and research at the Smithsonian Institution. More than \$1.3 million in grants has been distributed by the Committee to the National Zoo.

## FONZ RESOURCES

[fonz.org](http://fonz.org)

Membership  
Information  
202.633.2922

Special Events  
202.633.4470

Development Office  
202.633.3027

Camps and Classes  
202.633.3024

Volunteer Services  
202.633.3025

Comments? Questions?

Please email us at  
[member@fonz.org](mailto:member@fonz.org)

Not a FONZ  
member yet?

Call 202.633.3034  
or go to  
[fonz.org/join.htm](http://fonz.org/join.htm)

## Learn at the Zoo!

FONZ classes give children a deeper understanding of animals, their behaviors, and their habitats. Children's classes are open to FONZ members at the household level or higher.

Varying somewhat in structure, classes generally include hands-on activities, crafts, and time in the Zoo. Please note that classes do not include behind-the-scenes visits or direct contact between children and animals. Classes meet in the Visitor Center unless otherwise noted.

Find even more classes and register at [fonz.org/classes.htm](http://fonz.org/classes.htm).



MILLIAN MURPHY/NZP

### PRESCHOOL CLASSES

These programs invite adults and children to discover the Zoo together. All children must be accompanied by an adult. For everyone's safety and enjoyment, unregistered children and siblings may not attend—except for infants who do not yet crawl.

### COUNTING CRITTERS

How do we love the Zoo? Let us count the ways! Get a jump on preschool skills as we use math to learn about animals. Crafts, activities, and animals certainly add up to a fun day at the Zoo.

**AGES:** 2-3

**TIME:** 10-11:30 a.m.

**FEE:** \$25 each or \$88 for all four.

**DATES:** Mar. 4, 11, 18, 25

**MARCH 4:** Shapes

**MARCH 11:** Patterns

**MARCH 18:** Counting and  
Measurement

**MARCH 25:** Sorting

### MOO AT THE ZOO

You're invited to have a moo-arvelous time! Come celebrate the Kids' Farm, sponsored by State Farm®, with a month of pigs, cows, alpacas, and more! We're going to have "sow" much fun learning what it takes to be a farmer and enjoying special farm-themed activities. Join the herd and sign up now!

**AGES:** 2-3

**DATES:** April 8, 15, 22, 29

**TIME:** 10-11:30 a.m.

**FEE:** \$25 each or \$88 for all four.

**APRIL 8:** Cows

**APRIL 15:** Pigs

**APRIL 22:** Goats

**APRIL 29:** Alpacas

### OLD MACDONALD HAD A ZOO

Hay there! Have you "herd" the news? Old MacDonald doesn't own just a farm, but an entire Zoo! Learn about life on a farm at the Kids' Farm, sponsored by State Farm®, and visit some of his other, more wild animals. We're singing songs and making crafts as we E-I-E-I-O our way through the park!

**AGES:** 2-3

**TIME:** 10-11:30 a.m.

**FEE:** \$125

**DATES:** Session 1:

April 16, 23, 30; May 7, 14

Session 2:

April 17, 24; May 1, 8, 15

Session 3:

April 18, 25; May 2, 9, 16

Session 4:

April 19, 26; May 3, 10, 17

Session 5:

April 20, 27; May 4, 11, 18



JESSIE COHEN/NZP

### COLORFUL CRITTERS

No need to look to the skies; we've got a rainbow of animals right here in the park! Learn about the National Zoo's most colorful critters while singing songs and making crafts. We're painting the park red, so there's no need to be blue. Make your friends green with envy by registering for this program. Now orange you glad you're a FONZ member?!

**AGES:** 2-3

**DATES:** May 6, 13, 20, 27

**TIME:** 10-11:30 a.m.

**FEE:** \$25 each or \$88 for all four.

**May 6:** Red

**May 13:** Orange

**May 20:** Yellow

**May 27:** Green, Blue, and  
Purple

### ANIMAL OPPOSITES

In this class we'll compare big and small animals, prickly and smooth animals, fast and slow animals, and animals that are diurnal with those that are nocturnal. It all builds kids' understanding of how different characteristics help animals survive.

**AGES:** 3-5

**DATES:** May 11, 18, 25; June 1, 8

**TIME:** 1-2:30 p.m.

**FEE:** \$125

# FONZ CLASSES

## CHILDREN'S CLASSES

Parents are not encouraged to stay with the class, but may if they wish (for no charge).

### DINOSAUR TRAIN

All aboard the Dinosaur Train! We're traveling on an imaginary train to embark on exciting voyages through prehistoric jungles, swamps, volcanoes, and oceans. See modern-day dinosaurs and learn about their ancient relatives. Choo choo choose this class and sign up now before spots go extinct!

**AGES:** 4-6

**DATES:** Mar. 3, 10, 17, 24, 31

**TIME:** 10 a.m.-12 p.m.

**FEE:** \$28 each or \$125 for all five.

**MARCH 3: Dinosaur Discovery:** an intro to dinosaurs

**MARCH 10: Regal Reptiles:** the dinosaurs of today

**MARCH 17: Sky High:** flying dinos and their bird relatives

**MARCH 24: "What Big Teeth You Have!":** dino diets

**MARCH 31: Can You Dig It?:** fossils

### CHARLOTTE'S WEB

"Terrific" is not only Charlotte's word for Wilbur. It's how you'll feel about this class! Meet Wilbur's radiant cousins, our Ossabaw Island hogs, learn about Templeton's smarts, and admire Charlotte's talented distant relatives, the tarantulas. Spend April with us as we celebrate the Kids' Farm, sponsored by State Farm®!

**AGES:** 4-6

**DATES:** April 7, 14, 21, 28

**TIME:** 10 a.m.-12 p.m.

**FEE:** \$28 each or \$100 for all four.

**APRIL 7: Wilbur**

**APRIL 14: Templeton**

**APRIL 21: Charlotte**

**APRIL 28: Life on the Farm**

### TINGA TINGA TALES

There's no need for a passport when you can explore the savanna at the National Zoo! Take part in crafts and games as you learn about African animals and culture. Each week, we'll read a different African folktale before heading out into the park to see the "mane" characters. We're not lion: It's going to be a wild time!

**AGES:** 4-6

**DATES:** May 5, 12, 19, 26

**TIME:** 10 a.m.-12 p.m.

**FEE:** \$28 each or \$100 for all four.

**MAY 5: Why Zebras Have Stripes**

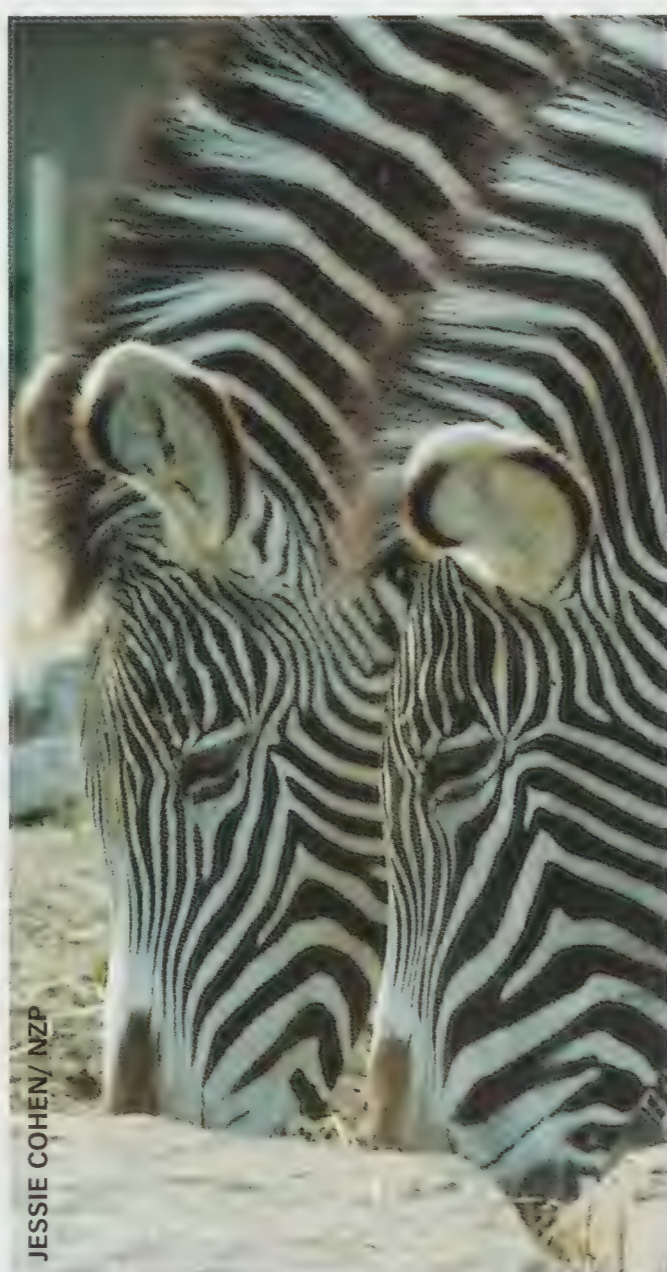
**MAY 12: Why Peacock Struts**

**MAY 19: Why Lion Roars**

**MAY 26: Why Snakes Have No Legs**



JESSIE COHEN/NZP



JESSIE COHEN/NZP

### AFTER-SCHOOL PROGRAM

Sign up your cub for the club! Our new after-school program draws on Maryland, Virginia, and D.C. science standards to offer an extension to classroom lessons. Keep your child away from the television and computer games for just a bit longer and spend an evening at the Zoo! It's the perfect combination of education and fun.

### ANIMAL MOVEMENT

Hop, fly, run, and swim your way to the National Zoo for an afternoon of studying how animals travel. What's the science behind the adaptations that allow these wild critters to survive? Through experiments and observation, we'll get a move on, unlocking the secrets of animal movement.

**TIME:** 4-5:30 p.m.

**FEE:** \$75

**DATES:** Grades 2-3:  
Apr. 9, 16, 23, 30; May 7  
Grades 4-5:  
Apr. 11, 18, 25; May 2, 9

### AROUND THE WORLD

Tour the Zoo and explore the world one continent at a time. Each week, we'll travel somewhere new and learn about the animals and cultures of the area through stories, crafts, and activities. Pack your suitcase and grab your passport. You don't want to miss the flight!

**TIME:** 4-5:30 p.m.

**FEE:** \$75

**DATES:** Grades 2-3:  
May 14, 21; June 4, 11  
Grades 4-5:  
May 16, 23; June 6, 13



JESSIE COHEN/NZP

## This is no ordinary camping trip!

FRIENDS OF THE  
NATIONAL ZOO

# SNORE & ROAR

Imagine waking up to the roar of powerful lions or hearing the early morning call of playful gibbons. Come spend the night at the Smithsonian's National Zoo. It's the best way to see the Zoo's animals after hours and have the park all to yourself.

Your overnight excursion will include an evening snack, a keeper-led tour of an exhibit area, a flashlight hike through the Zoo to check out the awesome nocturnal animals, a family-friendly scavenger hunt, and a continental breakfast after your night on Lion/Tiger Hill.

Snore & Roar overnights take place between June and September. Online registration will begin on Tuesday, April 3 at 10 a.m.

**Find a schedule and register at [fonz.org/snoreandroar.htm](http://fonz.org/snoreandroar.htm).**

**FONZ MEMBERS ONLY** To sign up, you must hold a current household membership or higher. Adult-only Snore & Roars are available to all membership levels. Participants in family overnights may bring two additional children as guests. A maximum of six participants may sign up per registration. Snore & Roar campers sleep in four-person tents. Participants are never asked to share their tent with strangers. Large groups cannot be accommodated.

Upgrade to a contributing membership (or higher) and register for Snore & Roar one week early. Priority registration begins online at 10 a.m. on Tuesday, March 27.

**AGES** Adults and children ages 6 and up. A paying adult must accompany anyone under 18, and one adult must chaperone every three children. Participants in adult-only overnights must be 21 or older.

**TIME** 6 p.m. to 9:30 a.m. the following day. A small snack is provided, but participants should eat dinner before coming to the Zoo. All Zoo restaurants close at 5 p.m.

**SNORE & ROARS ARE NOT JUST FOR KIDS!** Adult-only programs include wine and cheese, a two-hour, keeper-led tour, flashlight tour of the Zoo, and continental breakfast.

**CANCELLATION POLICY:** To receive a 75-percent refund, you must provide written notification via email or regular mail at least four weeks before your Snore & Roar date. No refunds or changes will be made thereafter. Snore & Roar overnights go on rain or shine.

### Tour Choices

Enjoy an exclusive, keeper-led tour of one of the following areas.

**Elephant Exhibit/Commissary** What does it take to feed a 9,000-pound elephant? Feast your eyes on the Zoo's new larger-than-life exhibit, Elephant Trails. Then meet a Zoo nutritionist and go on a behind-the-scenes tour to see where all of the diets for the Zoo's animals are designed and prepared.

**FEE:** \$130 per person

**DATES:** Aug. 24 (family),  
Sept. 7 (family), Sept. 15 (adult),  
Sept. 21 (family),  
Sept. 29 (family)

**Great Cats/Farm** No time for a cat nap! It's Snore & Roar gone carnivore—your chance to learn about lions and tigers. Afterwards, mooove on over to the Kids' Farm, sponsored by State Farm®, with a hands-on lesson on what it takes to care for farm life at the Zoo.

**FEE:** \$130 per person

**DATES:** June 8 (family), June 29 (family),  
July 7 (family), July 21 (family),  
Aug. 18 (family), Sept. 1 (adult)

**Bird House** From cute little kiwis and terrific toucans to fabulous flamingos and cool kori bustards (the largest birds that can fly), the Bird House is home to hundreds of feathered favorites. Visit them and get a keeper's insights into the wonderful world of birds.

**FEE:** \$80 per person

**DATES:** June 1 (family), June 23 (family), July 6 (family), July 20 (family), Aug. 10 (family),  
Aug. 18 (family), Aug. 25 (family)

**Small Mammals** While you're out there roughing it, our mini-mammals will be fluffing it. See our lemurs leaping, watch our monkeys monkeying around, and peer into the underground world of naked mole-rats.

**FEE:** \$80 per person

**DATES:** June 16 (family), July 28 (family),  
Sept. 22 (family)



MEHGAN MURPHY/NZP

**Amazonia** Take your family on a romp through the rainforest where you'll have an evening encounter with amphibians, fish, freshwater rays, birds and free-ranging monkeys.

**FEE:** \$80 per person

**DATES:** June 9 (family), Aug. 11 (family),  
Sept. 8 (family), Sept. 28 (family)

**Great Apes** Wake up with your primate cousins in the Ape House and see how they start their day. How does their morning routine compare to yours?

**FEE:** \$130 per person

**DATES:** June 30 (family),  
July 13 (family), Aug. 4 (adult),  
Aug. 17 (family)

**Asia Trail** A true after-hours hot spot in the center of D.C., our Asia Trail is a hub of activity with sloth bears, clouded leopards, fishing cats, Asian small-clawed otters, red and giant pandas. Please note: We do not guarantee the opportunity to see giant pandas.

**FEE:** \$130 per person

**DATES:** June 22 (family), July 14 (adult),  
July 20 (family), Aug. 3 (family),  
Sept. 8 (family)

### Cheetah Conservation Station

Chase a cheetah before catching some Z's. Learn about some of their neighbors at the Zoo, including dama gazelles, scimitar-horned oryx, maned wolves, and Grevy's zebras.

**FEE:** \$130 per person

**DATES:** June 1 (family), June 9 (family),  
July 13 (family)

**Invertebrates** Being spineless can be cool. In fact, most animals lack backbones. Learn about the giant Pacific octopus, corals, spiders, and other incredible invertebrates.

**FEE:** \$80 per person

**DATES:** June 15 (family), June 23 (family),  
July 6 (family), Sept. 22 (family)

### Reptile Discovery Center

Get the rap on reptiles and amphibians, from giant anacondas to tiny Panamanian golden frogs extinct in the wild.

**FEE:** \$80 per person

**DATES:** June 16 (family), July 7 (family),  
July 28 (family), July 14 (adult)

### NEW: American Trail

Celebrate the remarkable diversity of American species while exploring our newest exhibit. Visit animals such as beavers, otters, and American bald eagles, and hear some of their conservation success stories.

**FEE:** \$130 per person

**DATES:** Sept. 15 (adult),  
Sept. 28 (family)

## Conservation Campouts

**T**ake in the beauty of the Shenandoah Mountains while enjoying a rare glimpse of the Smithsonian Conservation Biology Institute's headquarters in Front Royal, Virginia.

Your adventure begins with a keeper-led tour and continues with a campfire. Bunk in tents provided by FONZ, then rise for breakfast and a family-friendly activity.

Learn more and register at  
[fonz.org/conservationcampout.htm](http://fonz.org/conservationcampout.htm).

**AGES:** Six and older. Each group must include one adult for each three children. These are all family overnights.

**TIME:** 5 p.m. to 10 a.m. the following day.

**FEE:** Members: \$115 per person. Nonmembers: \$125 per person.



## Tour Themes

A keeper will lead your group on one of the following two-part tours.

- **ADULT ONLY TOURS**
  - ▶ **Maned wolves and Endocrine Lab**
  - ▶ **Leopards and Endocrine Lab**
- **FAMILY TOURS**
  - ▶ **Birds and Vet Hospital**
  - ▶ **Cheetahs and Hoof Stock**
  - ▶ **Leopards and Maned Wolves**
  - ▶ **Cheetahs and Birds**



## Scout Snooze

**W**hen it comes to camping with exotic animals, nothing beats the Smithsonian's National Zoo. Your troop's overnight will include wildlife-related activities and a flashlight tour of the nocturnal residents at the Zoo.

Scout Snooze campers sleep on Lion/Tiger Hill in four-person tents provided by FONZ. In the morning, an animal keeper leads campers on a two-hour tour of an exhibit area. An evening snack and continental breakfast are provided.

**Scout Snooze sleepovers are available only to FONZ members.** To sign up, one adult per scout group must have a FONZ household membership (or higher). Scout leaders may assign tent arrangements.

**AGES:** Children ages 6 and older. A paying adult must accompany all participants under 18, and one adult is required to chaperone every three children.

**TIME:** 6 p.m. to 9:30 a.m. the following day. A small snack is provided, but participants should eat dinner before coming to the Zoo. All Zoo restaurants close at 5 p.m.

**FEE:** \$750 for up to ten people (including adults), \$75 for each individual above ten and up to twenty participants.



JESSIE COHEN/NZP

## Scout Snooze Programs

Each overnight includes a tour of one of the following areas. Visit [fonz.org/scoutsnooze.htm](http://fonz.org/scoutsnooze.htm) to learn more.

- ▶ **Bird House:** June 8, July 21, Aug. 24, Sept. 14
- ▶ **Small Mammals:** June 30, Sept. 8
- ▶ **Reptile Discovery Center:** Aug. 11, Sept. 21
- ▶ **Amazonia:** June 2
- ▶ **Cheetah Conservation Station:**  
June 15, June 23

## Close Encounter

**"I was not sure if he was showing off or about to attack me!" says Jennifer Allwine**

of the double-crested cormorant that landed right by her during a visit to the Bird House. A FONZ Photo Club member, Allwine studies chemistry at Anne Arundel Community College when she's not capturing animal images at the Zoo.



**Technical Notes** — CAMERA: Sony Alpha A300; FOCAL LENGTH: 70 mm; EXPOSURE: 1/160 second at f/5.6

**Smithsonian Zoogoer** welcomes FONZ members' submissions of photos taken at the Zoo. Please send photos to [Zoogoer@si.edu](mailto:Zoogoer@si.edu). We will contact you if we are able to use your picture for the Zoo View page.

JENNIFER ALLWINE

# WE WANT TO HAVE YOU FOR DINNER.

Smithsonian National Zoo's **ZOOFARI**



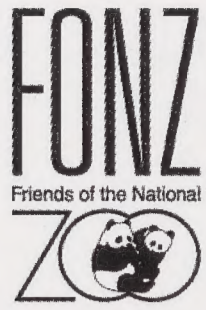
**Join us May 17 for Washington's most delicious fundraiser.**

ZooFari, the area's premier food tasting event, features more than 100 of the area's top restaurants, 15 vintners, animal demonstrations, and live entertainment all in the unique setting of the National Zoo. Proceeds benefit the Zoo's conservation, research, and education programs.



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**BUY TICKETS TODAY AT [FONZ.ORG/ZOOFARI.HTM](http://FONZ.ORG/ZOOFARI.HTM) OR CALL 202/633-3042.**



Friends of the National Zoo, PO Box 37012, MRC 5516, NW, Washington, DC 20013-7012, [www.fonz.org](http://www.fonz.org)



Smithsonian  
*National Zoological Park*

**Thank you for joining FONZ.**

Your membership supports animal care,  
science, conservation, and more.



# Coming Soon!

**American Trail**—celebrating the magnificent diversity of North American wildlife and the conservation success stories that they represent. The American Trail also features a new, state-of-the-art exhibit for our seals and sea lions. The Zoo has scheduled American Trail's opening for summer 2012.

**FONZ members will receive an exclusive exhibit preview and be invited to other celebratory activities!**

